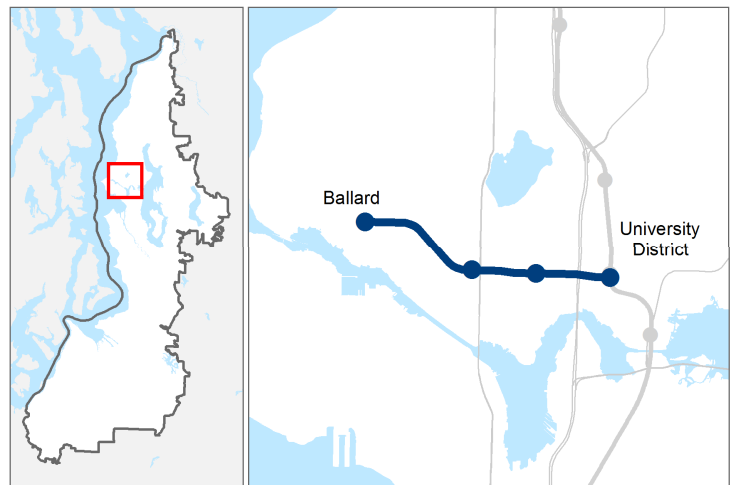


# C-02: Ballard to University District LRT

<b>Project Number</b>	C-02
<b>Subarea</b>	North King
<b>Primary Mode</b>	Light Rail
<b>Facility Type</b>	Corridor
<b>Length</b>	3.4 miles
<b>Version</b>	ST Board Workshop
<b>Date Last Modified</b>	11-25-2015

## PROJECT AREA AND REPRESENTATIVE ALIGNMENT



### SHORT PROJECT DESCRIPTION

This project would build light rail in a tunnel from Ballard’s Market Street area to the vicinity of the U District light rail station now under construction.

*Note: The elements included in this representative project will be refined during future phases of project development and are subject to change.*

### KEY ATTRIBUTES

<b>REGIONAL LIGHT RAIL SPINE</b> <i>Does this project help complete the light rail spine?</i>	No
<b>CAPITAL COST</b> <i>Cost in Millions of 2014 \$</i>	\$2,939 — \$3,145
<b>RIDERSHIP</b> <i>2040 daily boardings</i>	19,000 — 24,000
<b>PROJECT ELEMENTS</b>	<ul style="list-style-type: none"> <li>• Approximately 3.4 miles of below-grade light rail</li> <li>• Four underground stations: Ballard, Phinney/Upper Fremont, Wallingford, U District</li> <li>• Tunnel stations are approximately 400 feet long to accommodate up to 4-car trains</li> <li>• Operations and maintenance facility</li> <li>• Purchase of 6 light rail vehicles</li> <li>• Peak headways: 6 minutes</li> <li>• 1 percent for art per Sound Transit policy</li> <li>• Non-motorized access facilities (bicycle/pedestrian), transit-oriented development (TOD)/planning due diligence, and bus/rail integration facilities, (see separate document titled “Common Project Elements”)</li> </ul>
<b>NOT INCLUDED</b>	<ul style="list-style-type: none"> <li>• Parking not included</li> <li>• Alignment would not be interlined with existing light rail at U District Station; transfers would be required to travel north or south on light rail</li> <li>• See separate document titled “Common Project Elements”</li> </ul>
<b>ISSUES &amp; RISKS</b>	<ul style="list-style-type: none"> <li>• Location and construction of operations and maintenance facility could be difficult and expensive</li> <li>• Tunnel construction in mature urban environment</li> <li>• Tunnel could potentially conflict with new sewer being planned by Seattle Public Utilities; conceptual design assumes rail tunnel would be located above the sewer tunnel</li> <li>• Light rail currently operates in Seattle and specific station area standards are codified; light rail is included in the Comprehensive Plan and other planning documents.</li> </ul>

## C-02: Ballard to University District LRT

Sound Transit has developed a conceptual scope of work for this candidate project for the purpose of generating a representative range of costs, both capital and operating; and benefits, including ridership forecasts, TOD potential, multi-modal access and others. This information is being developed to assist the Sound Transit Board as it develops an ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, number of stations, station locations, and number of parking stalls) will be determined after completion of system planning, project level environmental review, and preliminary engineering during which additional opportunities for public participation will be provided. Therefore, this scope definition should not be construed as a commitment that all representative features will be included in the final developed project.

### Long Description:

This project would build light rail in a tunnel from Ballard's Market Street area to the vicinity of the U District light rail station now under construction. The alignment would generally follow Market Street and 45<sup>th</sup> Street through Fremont/Phinney Ridge and Wallingford, and end near the U District Station. Riders wishing to continue north or south on Link would transfer at that station. Four stations are assumed, all below grade. These would serve the Ballard, Phinney Ridge/Upper Fremont, Wallingford, and University District neighborhoods. The representative alignment for this light rail project would be a tunnel under NW Market Street through Ballard and Phinney Ridge/Upper Fremont starting at 15<sup>th</sup> Avenue NW, and then under N 44<sup>th</sup> Street through Wallingford, under I-5, and then under NE 43<sup>rd</sup> Street through the University District, terminating at approximately 15<sup>th</sup> Avenue NE. This alignment would not be interlined with existing light rail at U District Station. Transfers would be required to travel north or south on light rail.

### Assumptions:

- Alignment generally along existing arterials
- No parking provided
- Operations and maintenance facility assumed in Ballard area, with connection by stub tunnel and short at-grade section
- For non-motorized station access allowances, the Ballard and Wallingford stations are categorized as Urban stations; the Phinney/Upper Fremont and U District stations are categorized as Urban stations with Major Bicycle Intercepts
- For bus/rail integration, facilities have been assumed at the Phinney/Upper Fremont and Ballard stations

### Environmental:

Sound Transit will complete project-level state and federal environmental reviews as necessary; provide mitigation for significant impacts; obtain and meet the conditions of all required permits and approvals; and strive to exceed compliance and continually improve its environmental performance.

### Utilities:

Utility relocation as needed to complete the project, including fiber optics, sewer, water, overhead electric/communications, etc.

### Right-of-Way and Property Acquisition:

- Potential property acquisitions anticipated at stations, operations and maintenance facility, and bus/rail integration facility

### Potential Permits/Approvals Needed:

- Building permits: Electrical, Mechanical, Plumbing
- Utility connection permits
- Construction-related permits (clearing and grading, stormwater management, street use, haul routes, use of city right-of-way)
- Master use
- Land use approvals (Conditional use, design review, site plans, Comprehensive Plan or development code consistency, Special Use Permits)
- Coordination with University of Washington
- All required local, state, and federal environmental permits
- NEPA/SEPA and related regulations

### Project Dependencies:

Requires development of independent operations and maintenance facility; however, if this project is combined with project C-01c, then cost savings could be achieved with construction of only one new OMF

### Potential Project Partners:

- City of Seattle
- University of Washington
- King County
- FTA
- Transit partner serving this project: King County Metro

## C-02: Ballard to University District LRT

### Cost:

Sound Transit has developed a conceptual scope of work for this candidate project for the purpose of generating a representative range of costs, both capital and operating; and benefits, including ridership forecasts, TOD potential, multi-modal access and others. This information is being developed to assist the Sound Transit Board as it develops an ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, number of stations, station locations, and number of parking stalls) will be determined after completion of system planning, project level environmental review, and preliminary engineering during which additional opportunities for public participation will be provided. Therefore, this scope definition should not be construed as a commitment that all representative features will be included in the final developed project.

In Millions of 2014\$

ITEM	COST	COST WITH RESERVE
Agency Administration	\$155.69	\$166.59
Preliminary Engineering & Environmental Review	\$94.81	\$101.45
Final Design & Specifications	\$188.80	\$202.01
Property Acquisition & Permits	\$145.82	\$156.03
Construction	\$1,925.72	\$2,060.52
Construction Management	\$169.92	\$181.81
Third Parties	\$37.96	\$40.62
Vehicles	\$31.80	\$34.03
Contingency	\$188.80	\$202.01
<b>Total</b>	<b>\$2,939.31</b>	<b>\$3,145.06</b>

Design Basis:












Conceptual

The costs expressed above include allowances for TOD planning and due diligence, Sustainability, Bus/rail integration facilities, and Non-Motorized Access. These allowances, as well as the costs for Parking Access included above, are reflected in the following table. Property acquisition costs are not included in the table below, but are included within the total project cost above.

ITEM	COST	COST WITH RESERVE
TOD planning and due diligence	\$0.62	\$0.66
Sustainability	N/A	N/A
Parking access	N/A	N/A
Non-motorized (bicycle/pedestrian) access	\$19.77	\$21.16
Bus/rail integration facilities	\$5.51	\$5.89

## C-02: Ballard to University District LRT

## Evaluation Measures:

MEASURE	MEASUREMENT/RATING	NOTES	
 <b>Regional Light Rail Spine</b> <i>Does project help complete regional light rail spine?</i>	No		
 <b>Ridership</b> <i>2040 daily station boardings</i>	19,000 — 24,000		
 <b>Capital Cost</b> <i>Cost in Millions of 2014 \$</i>	\$2,939 — \$3,145		
 <b>Annual O&amp;M Cost</b> <i>Cost in Millions of 2014 \$</i>	\$17.16		
 <b>Travel Time</b> <i>In-vehicle travel time along the project (segment)</i>	7 min		
 <b>Reliability</b> <i>Quantitative/qualitative assessment of alignment/route in exclusive right-of-way</i>	High	100% in exclusive right-of-way	
 <b>System Integration</b> <i>Qualitative assessment of issues and effects related to connections to existing local bus service and potential future integration opportunities</i>	Medium-High	Opportunities for integration with bus service and for realigning service	
	<b>Ease of Non-motorized Access</b> <i>Qualitative assessment of issues and effects related to non-motorized modes</i>	Medium-High	
	<b>Percent of Non-motorized Mode of Access</b> <i>Percent of daily boardings</i>	70-80%	
 <b>Connections to PSRC-designated Regional Centers</b> <i>Number of PSRC-designated regional growth and manufacturing/industrial centers served</i>	2 centers	Ballard-Interbay MIC, University Community Regional Growth Center	
	<b>Land Use and Development/TOD Potential</b> <i>Quantitative/qualitative assessment of adopted Plans &amp; Policies and zoning compatible with transit-supportive development within 0.5 mile of potential stations</i>	Medium-High	Strong support in local and regional plans; approx. 35% land is compatibly zoned
	<i>Qualitative assessment of real estate market support for development within 1 mile of potential corridor</i>	Medium-High	Strong market support
	<i>Density of activity units (population and employment for 2014 and 2040) within 0.5 mile of potential station areas</i>	Pop/acre: 2014: 21; 2040: 27 Emp/acre: 2014: 15; 2040: 23 Pop+Emp/acre: 2014: 36; 2040: 50	
 <b>Socioeconomic Benefits</b> <i>Existing minority / low-income populations within 0.5 mile of potential station areas</i>  <i>2014 and 2040 population within 0.5 mile of potential station areas</i>  <i>2014 and 2040 employment within 0.5 mile of potential station areas</i>	28% minority; 23% low-income  Pop: 2014: 39,800; 2040: 51,000  Emp: 2014: 29,400; 2040: 44,300		

For additional information on evaluation measures, see <http://soundtransit3.org/document-library>